ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Investigations are being continued into the cause of the nuclear reactor accident at the National Reactor Testing Station, Arco, Idaho, in which three men were killed in an explosion there last fortnight of a prototype reactor. Designed as a mobile power and heat plant for remote military bases, the reactor had been in operation at the station for over two years. The men killed, two certified reactor operators and a trainee, were preparing to start up the reactor after a 10-day shut down. Intense radioactivity within the building housing the reactor has been impeding the investigation which is being conducted by the USAEC staff and contractor consultants making up a board of inquiry. (Safety survey of all reactors and allied equipment licensed by the USAEC is being made by the Commission as an aftermath of this accident. Particular attention is to be given to adequacy of control components installed on reactors.)

Open pool reactor of 3,000 thermal kw design has been ordered from General Electric Co. by the state of Rhode Island. To cost some $526,500 the reactor will be located at the state's atomic research laboratory at Fort Kearney; construction of building to house the reactor and associated equipment will start this Spring. GE's atomic power equipment department, San Jose, Calif., will design and build the reactor which will be used in nuclear research sponsored by the state as well as for research and training programs of University of Rhode Island, Brown University, and Providence College. (Other BUSINESS NEWS, p.3 this LETTER.)

Radiation Counter Laboratories, Inc., Skokie, Ill., have reported record breaking gross sales for the first half of the company's fiscal year ending Dec. 31, 1960. An increase of some 29.4% above the same period for the previous year was registered by the firm, which manufactures radiation measuring devices, reactor control instrumentation, etc. December sales by the company of its standard items were said to have surpassed all previous monthly totals. (Other FINANCIAL NEWS, p.5 this LETTER.)

New line of nuclear gages for non-contacting thickness-density measurement and control has been developed and is being marketed by Radionics, Inc., Norristown, Pa. The basic gaging unit differs from most nuclear gages in that it uses a technique of scintillation detection which Radionics people developed. The detector permits the use of either beta or gamma radiation extending the range of application of the device from the thinnest tissue paper to a foot of steel or more. Said to have a high speed of response, i.e., down to 10 milliseconds, high speed inspection is possible. (Other PRODUCTS, PROCESSES, INSTRUMENTS, p.2 this LETTER.)

Advanced educational program leading to Ph.D. degree in the field of nuclear engineering has been established at University of Illinois. The new program is being set up some two years after the University initiated nuclear engineering courses at the master's degree level. During that period 13 degrees have been awarded.

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ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS AWARDED: Contract in value of $166,200 for construction of some 300 Oak Ridge research reactor fuel elements has been awarded General Electric Co. by Union Carbide Corp., acting as prime contractor for the USAEC in operation of the Oak Ridge National Laboratory where the reactor is located. GE expects to start delivery of the elements in March from its San Jose, Calif. plant. The MTR-type elements--uranium-aluminum alloy clad with aluminum--are some 3-ft. long and 3-in. square. The fuel in each element consists of 200 grams of uranium enriched to 90% in uranium-235.

The joint venture of Aetron-Blume-Atkinson has been selected by the USAEC as architect engineer-managers for the planning of the 10-20 Bev linear electron accelerator facility of Stanford University near Palo Alto, Calif. The $300,000 of work will be done under a cost-type subcontract under Stanford's prime contract with the USAEC. Congress authorized some $3 million for initial design and engineering for the project. The major part of these funds will be used by Stanford University for further research and development related to the accelerator components. If Congress gives full authorization for the project, it will involve an expenditure of over $100 million. (Aetron-Blume-Atkinson consists of John A. Blume and Associates, San Francisco; Aetron division of Aeroject-General Corp., Covina, Calif.; and Guy F. Atkinson Co., South San Francisco.)

Contracts have been signed by the USAEC with Consumers Power Co., Jackson, Mich., and General Electric Co., San Jose, Calif., for the prototype nuclear power plant project at Big Rock Point, Charlevoix, Mich. Consumers Power contract provides for the company to design, construct and operate the nuclear power plant at its own expense. Some $500,000 will be given the company by the Commission for research and development costs. Additionally, the Commission will waive fuel charges valued at about $1,650,000 for the first five years of plant operation. Under the GE-USAEC contract, the Commission will support the research and development program up to a maximum of $3,710,916 subject to an upward escalation of 10% maximum. (Under separate contracts with Consumers Power, the Bechtel Corp., San Francisco, will design and construct the plant and GE will supply the nuclear fuel for the plant operation and do research and development work. GE, as subcontractor to Bechtel, will also furnish the nuclear steam supply system and certain conventional power plant equipment for the project. Capital costs for the plant, including site preparation, etc., are estimated by Consumers Power to be some $27,762,000.)

Remote servicing machine to handle intricate functions involving exacting tolerances at the experimental gas-cooled reactor at Oak Ridge, Tenn., has been ordered from McKiernan-Terry Corp., Harrison, N.J., by H. K. Ferguson Co., Cleveland, the construction contractor for the reactor. The machine, to cost some $2,198,447 will utilize a rotating turret, positioning arms, grapples, etc., to handle its remote functions. It was designed by Allis-Chalmers Co.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...

PRODUCT NEWS: Series of low-cost nuclear science training kits, designed specifically to teach and demonstrate the principles of atomic science, are now being offered by Atomic Accessories, Inc., Valley Stream, N.Y. Each kit is built around a five-digit decade scaler, a miniature well scintillation system, a window gas flow counter, or combinations of these. Accessory items include timers, GM detectors, ratemeters, absorbers, etc. The company has also made available the component parts of each kit.

Self-testing flux amplifier, said to have wide range and freedom from drift, is offered by General Electric Co's atomic power equipment department, San Jose, Calif. The instrument is designed to provide reactor power level data for visual display, recording or logging, control and shutdown or scram operations. Zero drift of the instrument is said to be less than 0.5% and response time less than 5 milliseconds with 1000-ft. of cable to the ion chamber.

Structural behavior of the various types of containers now used for waste disposal in the sea at depths of 1,000 fathoms will be examined by the USAEC in a project off the coast of Southern California. The sea tests will be conducted by Pneumo-Dynamics Corp., El Segundo, Calif. Under a sub-contract from this firm, Edgerton, Germeshausen, and Grier, Inc., Santa Barbara, will handle the photographic engineering and radiological health services for the tests.

ATOMIC ENERGY BUSINESS NEWS...

DEADLINE EXTENDED: Deadline has been extended by the USAEC for "expressions of interest" by cooperatively and publicly-owned utilities in participating in a nuclear power plant project. This involves a prototype 50,000 net electrical kw organic cooled and moderated power reactor. Original deadline for responses was January 15, 1961; it has been extended to January 31.

INTEREST BOUGHT: Minority interest in Vitro Chemical Co. has been bought by Vitro Corp. of America, parent concern, from Pechiney, French chemical group. In addition to buying all stock and notes held by Pechiney, Vitro has entered into a new royalty agreement which will run until December 31, 1974. It gives Vitro exclusive U. S. and Canadian rights to all present and future Pechiney process and product patents involving rare earth chemicals, metals, alloys, and related compounds. Such products as thorium, scandium, yttrium, hafnium, and zirconium compounds are included. (Vitro Chemical Co. had been formed in 1959, at which time Vitro had 91.6% interest; its recent purchase of Pechiney's 8.4% interest gives it full ownership.)

COMPACT VERSION OF SHIP NUCLEAR POWER PLANT BEING DESIGNED: Babcock & Wilcox Co., designers and builders of the nuclear power plant for the Savannah, are working on a more compact version of Savannah's pressurized water plant, John Landis, of B&W's atomic energy division told a symposium on the Savannah held last week in New York under sponsorship of American Nuclear Society. Dr. Landis said the new unit might be one-half to one-third the size of the Savannah plant. The symposium was also told that sea trials of the craft are expected before June, and will take some six to eight months. This compares with sea trials of 2 to 3 days for conventionally-powered ships. Work on the $40,500,000 Savannah is nearing completion at the Camden, N.J., yards of New York Shipbuilding Corp.; it is about a year behind schedule.

FOOD ADVISORY COMMITTEE ESTABLISHED: At request of USAEC, the American Institute of Biological Sciences has established a committee to advise with the Commission's Office of isotopes development on technical phases of the Commission's program to utilize low-dosage radiation to extend the refrigerated shelf-life of specific fish, fruit and vegetables. Committee members include Bernard S. Schweigert, Michigan State University, (chairman); S. A. Goldblith, M.I.T.; Lloyd G. Kempe, University of Michigan; Norman F. Kraybill, National Institutes of Health; Merrill S. Read, National Dairy Council; and Roger J. Romani, University of California.

AMENDMENTS TO RADIATION REGULATIONS: Four amendments issued by the USAEC and effective immediately are to simplify and clarify regulations for protection of employees in atomic energy industries and the general public against hazards arising from use or possession of Commission-licensed radioactive materials. They result from public comment on several changes in the "Standards for Protection Against Radiation" (10 CFR 20) published by the Commission last September to bring these standards into line with those of the Federal Radiation Council and the National Committee on Radiation Protection and Measurement.

LICENSES AMENDED: Some five licenses for University and research reactors have been amended by the USAEC to provide additional operating safeguards. The reactors, are located at Bethesda Naval Hospital; Catholic University of America; Oregon State College; University of Akron; and William Marsh Rice University. The amendments to the licenses specify the excess reactivity load limits and scram settings. Seven other schools which also have reactors have been notified by the USAEC to provide similar safeguards: Colorado State University; University of California; University of Delaware; Utah State University; Texas A. & M.; Oklahoma State University; and the U. S. Navy Navigation Post-Graduate School. The reactors involved are Models AGN-201 and AGN-211, manufactured by Aerojet-General Nucleonics, Azusa, Calif.

LICENSE REVOCATION PROCEEDINGS INSTITUTED: Some seven alleged violations are charged by the USAEC against New York Shipbuildings Corp. in use of radioisotopes for industrial radiography; the Commission has instituted license revocation proceedings against the company. Complaint charges that employees, using radioisotopes without supervision, lost a 13 curie iridium-192 sealed source from its exposure device. The USAEC also charges that the firm permitted quantities of radiation emanating from a nominal 21.6 curie cobalt-60 source contained in a radiographic exposure device to exist in unrestricted areas in excess of limits fixed by regulations. Public hearing on the matter has been set for January 24, 1961 at the U. S. District Courthouse, Camden, N.J.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED January 3, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Process for making heavy water. George A. Mills, Sol W. Weller, Leon W. Wright, inventors. No. 2,967,089 assigned to Houdry Process Corp., Wilmington, Del. (2) Irradiation of nylon. Elliott J. Lawton, inventor. No. 2,967,137 assigned to General Electric Co. (3) Butyl rubber compounded with radio-polymerized alkanes. George E. Serniuk, John Rehner, Jr., inventors. No. 2,967,138 assigned to Esso Research and Engineering Co. (4) Method of forming a sheet into an integral tube. Anthony W. Bartoszak, inventor. No. 2,967,139 assigned to The Martin Co. (5) Radioactive timing method and apparatus. Royal Weller, inventor. No. 2,967,243 issued to inventor of record. (6) Well logging apparatus. John T. Dewan, William D. Lunn, inventors. No. 2,967,244 assigned to Schlumberger Well Surveying Corp., Houston, Tex. (7) Neutron source for well logging apparatus. Sidney Soloway, inventor. No. 2,967,245 assigned to Schlumberger Well Surveying Corp., Houston, Texas. (8) Pulsing system for electrostatic accelerator. Alfred J. Gale, inventor. No. 2,967,258 assigned to High Voltage Engineering Corp., Burlington, Mass.

PATENTS ISSUED January 3, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Casting furnaces. Robert H. Ruppel, Charles E. Winters, inventors. No. 2,966,709 assigned to USAEC. (2) Deflection pressure tester. Charles M. Cooper, inventor. No. 2,966, 794 assigned to USAEC. (3) Sensitive pressure gauge. William P. Ball, inventor. No. 2,966,799 assigned to USAEC. (4) Nuclear reactor fuel elements. Marion L. Picklesimer, William C. Thurber, inventors. No. 2,967,141 assigned to USAEC. (5) Recovery of ruthernium. William E. Grummitt, William H. Hardwick, inventors. No. 2,967,209 assigned to USAEC. (6) Ion pump. Norman Milleron, inventor. No. 2,967,257 assigned to USAEC.

PATENTS ISSUED January 10, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Manufacture of HF. Eugene Wainer, inventor. No. 2,967,759 assigned to Horizons, Inc., Cleveland, Ohio. (2) Scintillation detector. Jeremy D. Cook, inventor. No. 2,967,935 assigned to North American Philips Co., Inc., New York, N.Y. (2) Method and apparatus for measuring thickness. Alexander S. McKay, inventor. No. 2,967,937 assigned to Texaco, Inc. (3) Thickness measurement. Alexander S. McKay, Arthur H. Lord, Jr., Roland W. Johnston, Jr., inventors. No. 2,967,938 assigned to Texaco, Inc. (4) Apparatus for testing radiation detection devices. George E. Davis, Elmo J. Di Ianni, inventors. No. 2,967,942 issued to inventors of record.

PATENTS ISSUED January 10, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Apparatus for measuring the thickness of a deposit. Pierre P. Martinelli, inventor. No. 2, 967,934 assigned to Commissariat a l'Energie Atomique, Paris, France. (2) Method and apparatus for controlling direct-cycle nuclear reactors. Glenn A. Reed, inventor. No. 2,967,809 assigned to USAEC. (3) Fuel elements for thermal-fission nuclear reactors. Oliver Flint, inventor. No. 2,967,811 assigned to USAEC. (4) Nuclear reactor fuel composition. William C. Thurber, inventor. No. 2,967,812 assigned to USAEC. (5) Method of resisting radiation damage to organic fluids and compositions therefor. Robert O. Bolt, James G. Carroll, inventors. No. 2, 967,827 assigned to USAEC. (6) Gaseous discharge device. James D. Gow, inventor. No. 2,967,943 assigned to USAEC. (7) Automatic frequency control system. Calvin F. Hansen, John D. Salisbury, inventors. No. 2,968,007 assigned to USAEC.

NEW BOOKS & OTHER PUBLICATIONS...

Development of a Simulated High-Temperature Nuclear Loop. J. P. McGee, N. H. Coates, G. E. Fasching, Bureau of Mines. Work done in cooperation with the USAEC. The nuclear loop described in the report has been operated for more than 1,800 hours at 100 p.s.i.g. USDILC No. 7981. --Superintendent of Documents, Wash. 25, D.C. (20¢)

Beryllium Joining RAD Sponsored Program. Part 1. Work done by J. B. Cohen, Avco Corp., for Wright Air Development Division. 45 pages. No. PB-161, 830 ($1.25) .....Beryllium Joining WADC Sponsored Program. Part 2. Report by E. M. Passmore, Avco Corp., for Wright Air Development Division. 127 pages. ($2.75) No. PB-161,831. --Office of Technical Services, Wash. 25, D.C.

NOTES: The European Atomic Energy Community (EURATOM), U.K. Atomic Energy Authority, and the USAEC have established a central information office at EURATOM's Brussels headquarters where they will pool their efforts in collection and distribution of translations of nuclear literature especially from Russian and Japanese. The monthly "Transatom" Bulletin will list recent translations, etc. It is available on subscription basis from Transatom c/o EURATOM, 51 rue Belliard, Brussels, Belgium at $8.00 per year, or $16 per year by air mail.

ATOMIC ENERGY FINANCIAL NEWS...

URANIUM FIRM EXPANDS HOLDINGS: Kerr-McGee Oil Industries, Inc. has acquired shares of Kermac Nuclear Fuels Corp. remaining after recent merger of Pacific Uranium Mines Co., Los Angeles, into Kerr-McGee. Completion of this recent merger provided Kerr-McGee with an additional 20.81% of the stock of Kermac Nuclear Fuels. The acquisition of this stock, plus Kerr-McGee's previous holdings and other acquisitions consummated recently increased its interest to approximately 80.35% of the stock of Kermac Nuclear. Kermac Nuclear is believed to hold 20% of known U.S. uranium reserves. It owns and operates a large uranium processing plant in the Ambrosia Lake area in New Mexico. Under its USAEC contracts, Kermac can sell the Commission some $300 million of uranium concentrates from this plant through 1966. (In the Pacific Uranium Mines Co. merger, Kerr-McGee acquired Pacific's interest in certain uranium mining properties and royalties in the Ambrosia Lake area near Grants, N.M., plus 25% of the stock of Ambrosia Lake Uranium Corp. which owns substantial uranium reserves near the Kermac mill. The merger had involved issuing 220,537 shares of Kerr-McGee common stock in exchange for the 4,410,750 shares of Pacific Uranium outstanding shares. Terms called for the exchange of one Kerr-McGee share for each 20 shares of Pacific Uranium held.)

U.S. LIABILITY DENIED IN DIXON-YATES CASE: Supreme Court ruling last fortnight was that the U.S. does not owe Mississippi Valley Generating Co. nearly $2 million damages for expenses incurred before the company's $107 million contract was cancelled in 1955. The damage suit in this case was filed in 1955 after the President had cancelled the contract the USAEC signed with Middle South Utilities, Inc., and Southern Co.--parent concerns of Mississippi Valley Generating--to build a multi-million-dollar electric generating plant at W. Memphis, Ark. A lower court had ruled the U.S. liable for damages; this has now been overturned by the Supreme Court, on appeal. Because of the heads of the utilities, this had come to be known as the Dixon-Yates case.

PEOPLE...in nuclear work...

Sir John Cockcroft, British physicist, has been named to receive the 1961 Atoms for Peace award, the annual award of $75,000 for nuclear physics accomplishments.

John H. Harley has been appointed director of the USAEC's health and safety laboratory in New York City. Dr. Harley succeeds S. A. Lough, now with the Commission in Washington.

S. J. Farmer, division counsel of General Atomic division of General Dynamics Corp., has been made vice-president and counsel of the division.

RAW MATERIALS...prospecting, mining, marketing...

URANIUM CONCENTRATE PURCHASE CONTRACT AMENDED: The USAEC:Kermac Nuclear Fuels Corp. uranium procurement contract, which was renegotiated in accordance with the USAEC's buying policy announced in November, 1958, provides for the purchase between Nov. 1, 1960 and Dec. 31, 1966, from ores developed prior to that date, of approximately 31 million pounds of concentrates having a total value of $237 million at an average price of $7.63 per pound. The per pound price on 13 million pounds scheduled for delivery by June 1, 1963 will be $7.18; that on the remaining 17 million pounds $8. Deliveries by Kermac under the life of the contract originally signed in May 1957 will total 39.7 million pounds at cost of $302 million.

URANIUM MILL CONTRACT EXTENDED: Uranium concentrate purchase contract between the USAEC and Susquehanna-Western Inc., operators of 2,500-ton per day uranium processing plant at Riverton, Wyoming, has been extended to Dec. 31, 1966. The contract, recently signed, is effective as of June 1, 1960, and provides that the USAEC will purchase uranium concentrates valued at a total of approximately $47 million through Dec. 31, 1966. Original contract called for uranium concentrate purchase of $22,900,000 for uranium concentrates produced between July 1, 1960 and the expiration of the contract October 31, 1963. Under terms of the new contract, approximately 1,503,000 pounds of uranium oxide may be delivered between June 1, 1960 and April 1, 1962 at a unit price of $8.63 per pound and 4,272,000 pounds after that date at $8 per pound.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

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